



NSF Regional Innovation Engines (NSF Engines) Proposal

**An Inclusive Innovation Ecosystem and Economic Development Engine for
Transforming North Central Texas and Southern Oklahoma
Logistics Industry**

Summary overview of the NSF Engine Type-1 Proposal

overview presented by

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Participating Universities and Collaborators



Vision & Goal

Vision: Transform innovation deserts in the TEXOMA Region into strong economic contributors through diversity, equity, and inclusion strategies that establish an institutionalized collaborative network of universities, colleges, schools, public agencies, industries, and economic and workforce development agencies.

Overarching goal: advance the logistics industry as an economic driver in the Texoma Region by supporting use-inspired research, logistics innovation, and expediting laboratory-to-market technology transfer.

Key Strategies

Vision

Transform innovation deserts in the Texoma Region into strong economic contributors through establishing an institutionalized collaborative network of universities, colleges, schools, public agencies, industries, and economic and workforce development agencies.

Goals

Advance the logistics industry as an economic driver in the Texoma Region through supporting use-inspired research, expediting laboratory-to-market technology transfer, incubating startups, promoting entrepreneurships, and developing next-generation workforce.

Strategies

Strategy I

Strategy II

Strategy III

Strategy IV

Strategy V

DIVERSITY - EQUITY - INCLUSION

Innovation and Use-Inspired Research Parks in Disadvantage Communities

Innovation-to Market Expedition and Startup Incubation

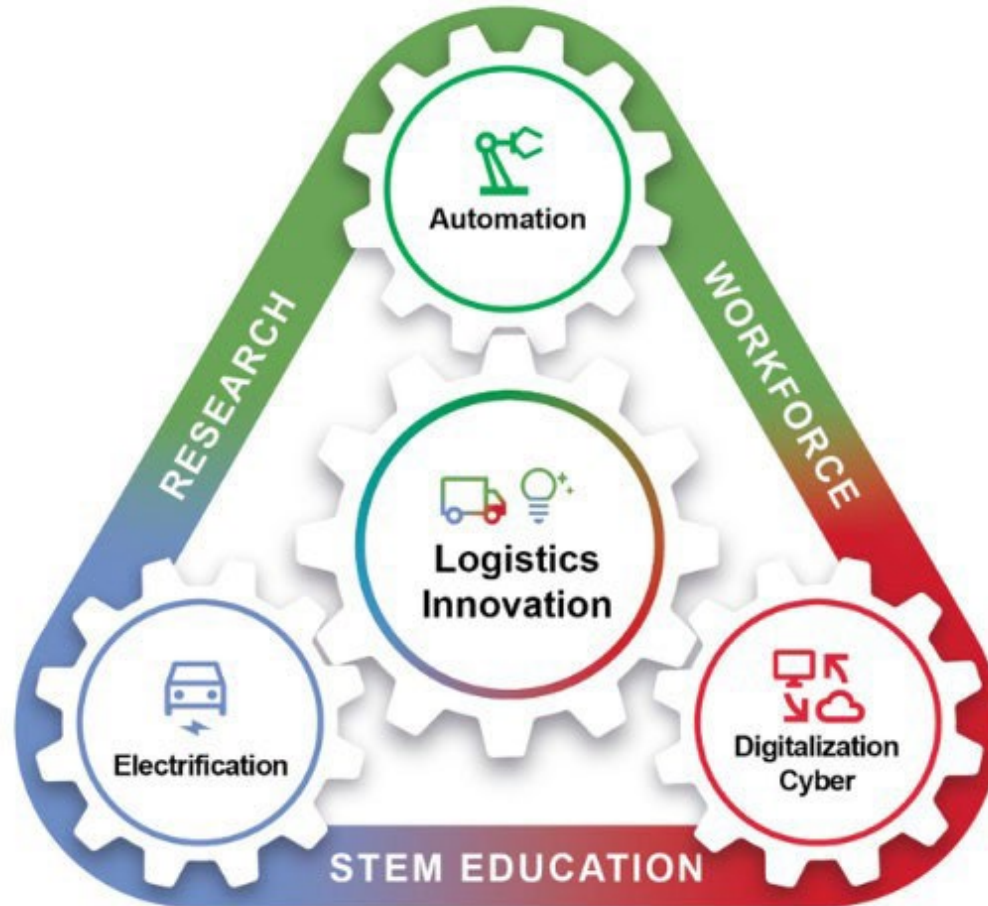
World-Class STEM Focused K12 Education System

World-Class Higher Education and Research Programs

Sustainable and Agile and Inclusive Workforce Development

Key Innovation Areas

Use-inspired research, expedited laboratory-to-market technology transfer, startup incubation and entrepreneurship, and workforce development activities, focusing on automation, electrification, and cyber technologies supporting the logistics industry.



Key Technology Innovation Areas

- **Automation:** The TIE will advance autonomous technologies such as autonomous vehicles/trucks, electric vehicles (EV), drones, robotics, and other complementary technologies, including surveillance/sensing, computer vision, object tracking, collision avoidance, human-machine interactions, and integration with emerging smart city infrastructures.
- **Electrification:** The ecosystem will advance transportation electrification technologies by promoting innovations in renewable energy generation and microgrids, energy storage, battery technologies, hydrogen fuels, on-the-move EV wireless charging, energy harvesting, grid resilience, and winterization.
- **Cyber:** The ecosystem will advance all spectrum of cyber technologies required for modern logistics systems, including big data analytics and visualization, digital twinning and augmented reality, edge computing, cybersecurity and blockchains, digital transformation, IoT and pervasive computing, and optimization software for routing, scheduling, auctioning, and supply chain design and operation.
- **Workforce development:** In addition to preparing individuals, especially in disadvantaged areas for future positions, TIE will research and plan for new and innovative vehicles to conduct training and more closely integrate industry input into developing training and educational programs.

Innovation Translation Pathway

DISCOVER ●



EVALUATE ●



MARKET ●



OPERATE ●



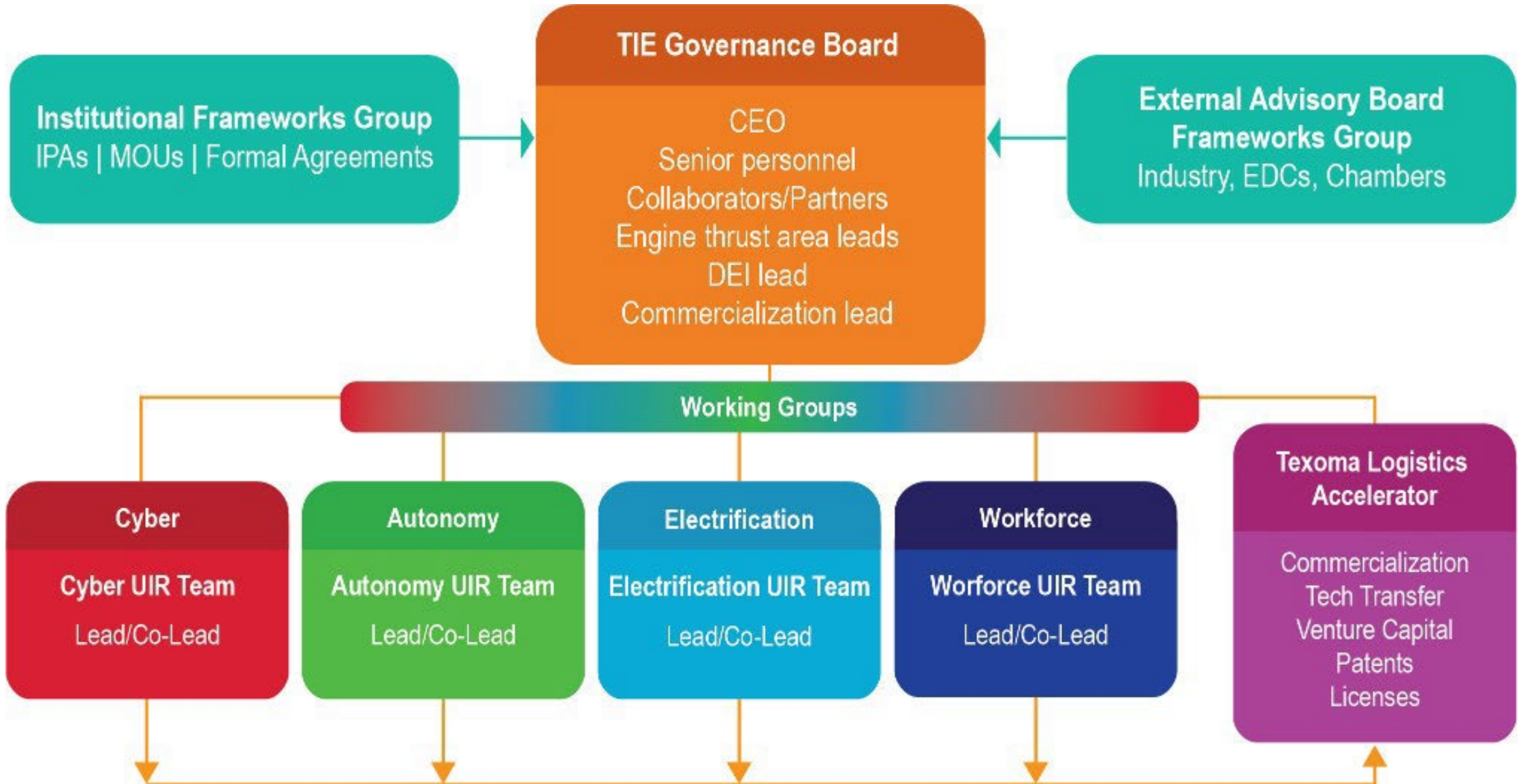
Articulating the Texoma Engine challenges and developing Innovative solutions that advances automation, electrification, and cyber technologies for the logistics industry.

Ensuring high research quality and evaluating the research in terms of novelty, patentability, and future commercial value and viability.

Outreach and marketing efforts to maximize the awareness of the project outcomes. Establishing platforms for the start-ups to engage with potential industry partners and ventures.

Implementing best practices and innovative programs to promote information sharing and knowledge transfer with the ultimate goal of putting research into effective practice.

Management Structure



Key Personnel

Core Team Members*	Organization	Management Functions	Qualifications
Dr. Terrance Pohlen	UNT	Interim CEO Senior Personnel Governance Board	Professor of Logistics, Senior Associate Dean, Director of Jim McNatt Institute, 20-year logistics officer in USAF
Dr. Andrey Voevodin	UNT	Senior Personnel Governance Board	Professor of Engineering, Associate Dean for Research
Dr. Clinton Purtell	UNT	Senior Personnel Governance Board	Clinical Assistant Professor, Logistics and Operations Management
Dr. Khaled Abdelghany	SMU	Senior Personnel Governance Board	Professor of Engineering, Director of Transportation Research Laboratory
Dr. Gautam Das	UTA	Senior Personnel Governance Board	Associate Dean for Research, College of Engineering, a Distinguished University Chair Professor of Computer Science and Engineering
LaKeshia Raynor	Dallas College	Senior Personnel Governance Board	Director, Workforce Development and Apprenticeships Relationship Management at Dallas College
Michael Gaffney	SEOSU	Senior Personnel Governance Board	Director of Aviation Programs, Assistant Professor
Dr. Victor Fishman	TRA	Senior Personnel Governance Board	Executive Director, Texas Research Alliance
James Grimsley	Choctaw Nation of Oklahoma	Senior Personnel Governance Board	Executive Director, Choctaw Nation of Oklahoma

* List may change during planning phase

Governance Board Members

Governance Board Members*	Organization	Title
Laura Freeland	SDCIPTMA	Executive Director
Dr Joe Seabrooks	Dallas College	President of Cedar Valley Campus
Jodie Brinkerhoff	DFW International Airport	Vice President Innovation
John Esparza	TXTA	President and CEO
Chris Ash	Hillwood, Inc.	Senior VP Business Aviation Development
John Redman	Southern SODA	Board of Directors, Member
Dr. Linda Holloway	UNT	Workplace Inclusion and Sustainable Employment Consultant
Eric Griffin	DRC	Vice-President, Research and Innovation
James Grimsley	Choctaw Nation of Oklahoma	Executive Director

* List may change during planning phase

Strategic Plan & Milestones for the Engine Planning Phase

ACTIVITY		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<i>Kick-off workshop for region innovation ecosystem and partnership in transportation logistics innovation</i>									
Developing and Refining Strategic Plan Components	S1. Innovation and Use-Inspired Research Parks in Disadvantaged Communities								
	S2. Innovation-to-Market Expedition and Startup Incubation								
	S3. World-Class STEM-Focused K12 Education System								
	S4: World-Class Cross-University Higher Education and Research Programs								
	S5. Sustainable and Agile Workforce Development								
Testing Engine strategic plan components using pilot projects for refinement feedback									
Partnership for consolidation for transportation logistics innovation ecosystem in Texoma region	Automation UIR theme plan development and workshop								
	Electrification UIR theme plan development and workshop								
	Cyber UIR theme plan development and workshop								
	Planning for workforce training and education for logistics innovation sustainability and partnership workshop								
	Planning for regional innovation centers and partnership workshop								
Preparing Engine operational plans and management structure	Establishing governing board and its role and responsibilities								
	Establishing advising boards and their roles and responsibilities								
	Formulating operational management plans								
	Formulating engine assessment criteria, progress metrics, continuous improving								
	Formulating communication, documentation and data management plans								
	Developing CEO duties, search criteria and identify possible candidates								
Writing and submitting Engine proposal									

